



A.D. 1845 N^o 10,825.

S P E C I F I C A T I O N

OF

HENRY BEWLEY.

FLEXIBLE SYRINGES, TUBES, BOTTLES, &^c.

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Flexible Syringes, Tubes, Bottles, &c.

BEWLEY'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, HENRY BEWLEY, of Dublin, Chemist, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Royal Letters Patent under the Great Seal of Great Britain, bearing date at
5 Westminster, the Fourth day of September, in the ninth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Henry Bewley, my exors, admors, and assigns, Her especial licence, full power, sole privilege and authority, that I, the said Henry Bewley, my exors, admors, and assigns, or such others as I, the said Henry Bewley, my exors,
10 admors, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, my Invention for "CERTAIN IMPROVEMENTS IN FLEXIBLE SYRINGES, TUBES, BOTTLES, HOSE, AND OTHER LIKE VEHICLES
15 AND VESSELS;" in which said Letters Patent is contained a proviso, that I, the said Henry Bewley, shall cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be inrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters
20 Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

Bewley's Improvements in Flexible Syringes, Tubes, Bottles, Hose, &c.

NOW KNOW YE, that in compliance with the said proviso, I, the said Henry Bewley, hereby declare that the nature of my said Invention, and in what manner the same is performed, are particularly described in and by the present Specification thereof:—

I employ as the principal element in my said improvements the substance 5 lately first introduced into this country from the East Indies, called gutta percha, and in one or other of the following states:—I employ it either in its natural liquid state, or in an artificial state of solution, or in a plastic state, or in a sheet state, or in a granular state, or in a state of combination with other substances, one, two, or more; and I either procure it in these states ready 10 for use, or I reduce it to the five states last before mentioned, by the means directed to be used for the purpose, in the Specification of Letters Patent for England, granted to Richard Archibald Brooman, of date the Eleventh March, One thousand eight hundred and forty-five, and in the Specification of certain other Letters Patent for England, granted to the said Richard Archibald 15 Brooman, of date the Twenty-seventh March, One thousand eight hundred and forty-five; with respect to which means themselves I make no claim.

And, firstly, I manufacture the said flexible syringes, tubes, hose, and other like vehicles and vessels, wholly of gutta percha in manner following:—I either take the gutta percha in a plastic state, and press it into or upon and 20 over moulds of the shape or figure of the vehicle or vessel desired to be produced, or I apply it in a liquid state to the exterior surface of suitable moulds, adding one coat after another till the requisite thickness has been obtained, and allowing each coat to dry before another is added; and in this case I make the moulds of plaster or clay, or some other material that will admit of its 25 being broken up after the cast has been obtained; or I pour the gutta percha in a liquid state into suitable moulds, and leave it to solidify; or I fill suitable moulds with the substance in a granular state, and subject these moulds to a heat sufficient to liquify the gutta percha, which on subsequent cooling will be found to retain the exact shape or figure of 30 the moulds; or I cut sheet gutta percha of a suitable thickness into strips or pieces of such given forms, that when combined together vertically or horizontally, or otherwise, they will form the required vehicle or vessel, and join or cement these strips or pieces together, either by overlapping and cementing, or by cementing them together edge to edge, either by heating the 35 edges, or by coating them with a solution of gutta percha or of caoutchouc, or by compressing them strongly together; or when making tubes, hose, and such like articles, I force gutta percha in a plastic state through an apparatus such

Bewley's Improvements in Flexible Syringes, Tubes, Bottles, Hose, &c.

as shewn in section in the Drawing hereunto annexed, where A represents a cylinder containing the gutta percha; B, a piston; C, a die box kept hot by steam, consisting of a disc c^1 , having a number of holes through which the gutta percha is forced by the piston into a cup c^2 , whence it passes out round
 5 a core D, and descends of the desired tubular form into a receiver or of cold water E beneath; or I make tubes and hose by rolling one long strip of sheet gutta percha round a mandril in a spiral or other direction, and cementing it together at the edges, as aforesaid, either by the application of heat or of a solution of gutta percha or caoutchouc, or by passing the mandril with the roll
 10 of gutta percha wound upon it through grooved rollers, or by immersing the mandril with the gutta percha wound upon it, as aforesaid, in hot water, or subjecting it to the action of hot air for a sufficient time. Should it be desired to give a polished or figured surface to any vessel, which has been produced of a plain or dull exterior, by any of the said methods, I introduce the vessel into
 15 a metal mould, made smooth or figured on the inside, as may be required, and force hot water or air into the interior of the vessel, so as to press it out against the inner face of the mould, and into every line, hole, or indentation which there may be in it. Gutta percha being a substance which is but little, if at all, affected by fats, oils, or grease, or acid fluids, or alkaline fluids, it is
 20 peculiarly suitable for the construction of surgical instruments, as catheters, bougies, urinals, &c.

Secondly, I manufacture by the same processes as aforesaid, one or other of them, the said flexible syringes, tubes, hose, and other like vehicles and vessels of gutta percha combined with other substances, one, two, or more; as, for
 25 example, combined with cloth or leather, or mixed with more or less of caoutchouc, or sulphur, or French chalk, or ground emery, or asphalte, according as the articles are required to be made softer or harder or cheaper, or otherwise modified, all as pointed out and explained in the before-mentioned Specifications of Richard Archibald Brooman; and sometimes also I substitute
 30 for the sulphur in such combinations an equal quantity of calamine reduced to a state of powder, or use equal portions of sulphur and calamine.

Thirdly, I use the gutta percha, both in the simple and mixed states before described, as a coating for flexible syringes, tubes, hose, and other like vehicles and vessels made in the body thereof of other substances, as caoutchouc, leather,
 35 cloth, &c., in order to render the same impervious to water, or to enable them to resist the action of grease and oils or of acid or alkaline fluids, and I apply the same either to both the inside and outside, or to the outside only, or to the inside only. The articles may be dipped in a solution of gutta percha, or the

Bawley's Improvements in Flexible Syringes, Tubes, Bottles, Hose, &c.

gutta percha may be laid on with a brush or sponge in a liquid state, and in one or more coats, as may be judged expedient, or it may be applied in sheets cemented to the articles by a solution of gutta percha or of caoutchouc, and joined at the edges by any of the means before described under the first head of this Specification. Tubes and hose of other materials as aforesaid may also 5 have a continuous sheathing of gutta percha, without joint or break, given to them in manner following:—The tubes and hose are passed through the holes of a steam draw plate or box, similar to those used by lead pipe makers for drawing lead pipes, and these holes, which are of a conical form with the broad end innermost, and are in their least diameter a little larger than the tubes or 10 hose, are kept supplied with gutta percha in a soft or nearly semi-fluid state, so that as the tubes or hose are drawn through the mass of gutta percha, they carry a sheathing of the stuff along with them. To make the gutta percha flow kindly, the steam plate or box should be kept at a temperature of about two hundred and thirty degrees. 15

Fourthly, when caoutchouc has been employed merely as a coating for flexible syringes, tubes, bottles, hose, and other like vehicles and vessels made of some other material or materials than caoutchouc, I superimpose upon it internally or externally a coating of gutta percha, and thereby obviate the stickiness and susceptibility to the action of grease and oils which belong to 20 the caoutchouc in the unprotected state. In this case the gutta percha is best added in a liquid state, and a thin layer of it will suffice.

Fifthly, should any of the flexible syringes, tubes, bottles, hose, and other like vehicles and vessels manufactured by any of the processes aforesaid from gutta percha in the simple or mixed state require to have more or less flexi- 25 bility given to them, I subject them in their manufactured state to the action of sulphur, either by dipping them in a bath of hot sulphur, or exposing them to the fumes of burning sulphur, both as described in the first of the before-mentioned Specifications of Richard Archibald Brooman.

And, sixthly, I make the said flexible syringes, tubes, bottles, hose, and 30 other like vehicles and vessels of a great variety of colors, by mixing with the gutta percha, in the simple or mixed states aforesaid, employed in the construction thereof, and however the same may be employed, the pigments or other matters suitable for imparting such colors.

And having now described the nature of my said Invention, and in what 35 manner the same is to be employed, I declare that I lay no claim to any of the modes of preparing the gutta percha before mentioned, or to any of the modes before pointed out of giving it form or figure; but that what I claim

Bewley's Improvements in Flexible Syringes, Tubes, Bottles, Hose, &c.

is, the application of gutta percha, in any of the states and by any of the processes before specified, to the manufacture of flexible syringes, tubes, bottles, hose, or other like vehicles or vessels, or to the improvement of such articles after manufacture, as aforesaid.

5 In witness whereof, I, the said Henry Bewley, have hereunto set my hand and seal, this Twenty-eighth day of February, in the year of our Lord One thousand eight hundred and forty-six.

HENRY (L.S.) BEWLEY.

10 **AND BE IT REMEMBERED**, that on the Twenty-eighth day of February, in the year of our Lord 1846, the aforesaid Henry Bewley came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

15 Enrolled the Fourth day of March, in the year of our Lord One thousand eight hundred and forty-six.

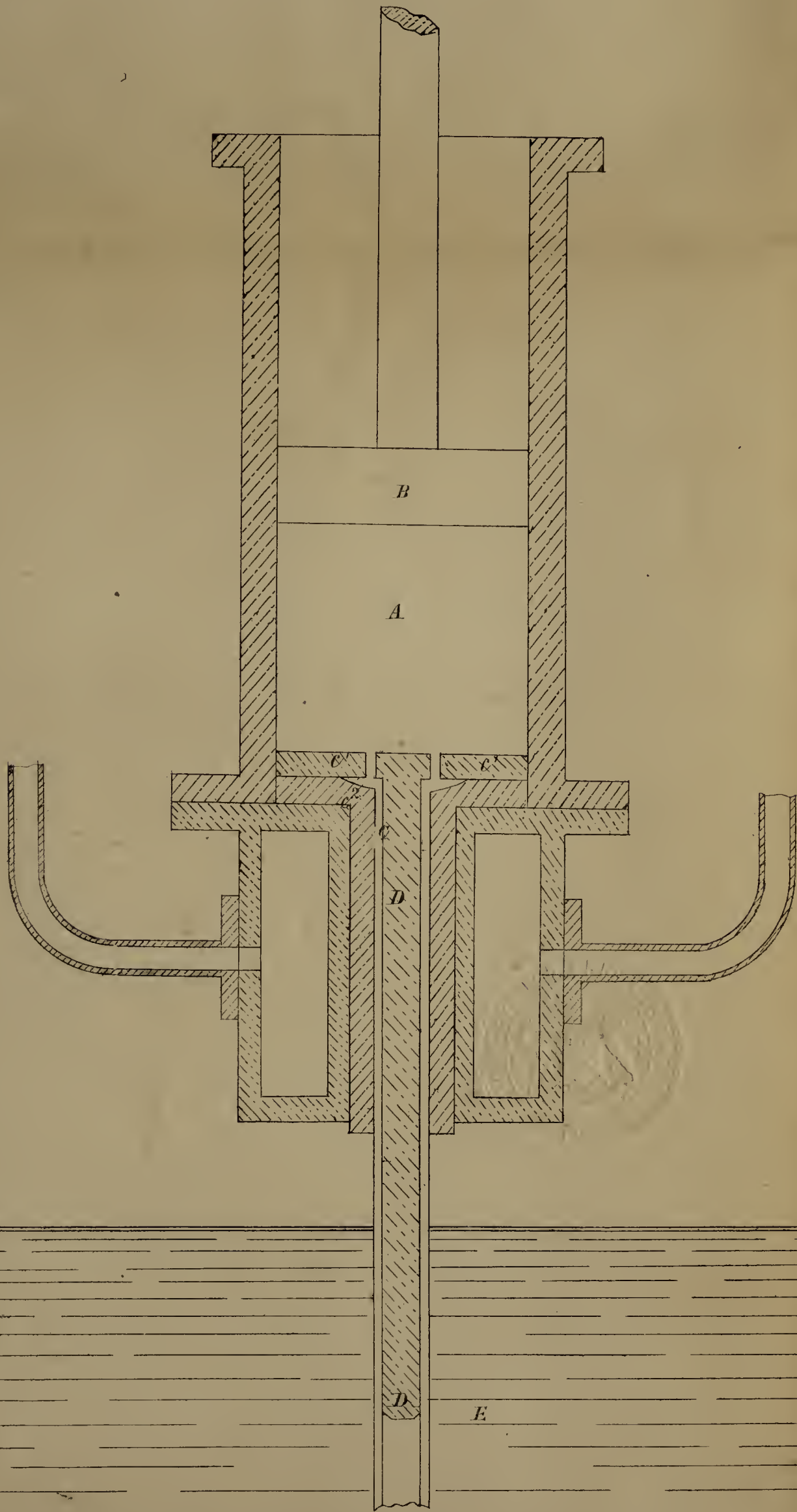
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A.D. 1845. SEPTEMBER 4. N^o 10,825.

BEWLEY'S SPECIFICATION.



enrolled drawing is colored.

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